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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 60(1) PCT/PTO 29 NOV 2004

10/516077

Applicant's or agent's file reference 4367WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA416)	
International application No. PCT/NL 03/00396	International filing date (day/month/year) 27.05.2003	Priority date (day/month/year) 31.05.2002
International Patent Classification (IPC) or both national classification and IPC D07B1/02, D07B1/02		
Applicant DSM IP ASSETS B.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.
 - This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:
 - I Basis of the opinion
 - II Priority
 - III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV Lack of unity of invention
 - V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI Certain documents cited
 - VII Certain defects in the international application
 - VIII Certain observations on the international application

Date of submission of the demand 22.12.2003	Date of completion of this report 03.06.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Gast, D Telephone No. +49 89 2399-2049



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NL 03/00396

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

2-6 as originally filed
1 received on 10.05.2004 with letter of 07.05.2004

Claims, Numbers

1-6 received on 10.05.2004 with letter of 07.05.2004

Drawings, Sheets

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NL 03/00396

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).
(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-6
	No: Claims	
Inventive step (IS)	Yes: Claims	1-6
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-6
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL 03/00396

1. Reference is made to the following documents:

D1: US-A-4 170 921

D2: US-A-5 901 632

- 2. None of the cited documents discloses in combination an endless rope containing laid-up primary strands according to claim 1 of the application containing a splice in at least every primary strand.**

In document D1 a braided rope containing primary strands is disclosed. however, the rope is not made endless and does not contain splices. No hint is found concerning splicing of the primary strands.

Document D2 discloses a braided rope made of braided primary strands which can be made endless by making a splice in the braided primary strand. In the rope according to the application the primary strands are laid-up strands.

No hint is found in either D1 or D2 concerning splicing of laid-up (non-braided) strands.

Claim 1, therefore, fulfils the requirements of Articles 33(1) - (4) PCT.

Dependent claims 2 - 12 are further preferred embodiments of the invention according to claim 1 and likewise fulfil the requirements of Article 33 PCT.

ENDLESS ROPE

5 The invention relates to an endless rope containing primary strands, the primary strands containing laid-up secondary strands, the laid-up secondary strands containing rope yarns.

10 A rope construction for the manufacture of an endless rope is known from US-A-5901632, which describes a braided rope consisting of braided primary strands, which in their turn consist of rope yarns. From this an endless rope can be manufactured by making a splice in the braided primary strand when during the manufacture of the rope a reel of a braided primary strand gets empty.

15 A rope containing primary strands, the primary strands containing secondary strands, the secondary strands containing rope yarns, is also known from US-A-4,170,921. This document discloses a double braided rope consisting of a braided core and a braided cover, the core or the cover rope containing primary strands, which consist of several secondary strands, which in their turn are made up of twined rope yarns, wherein the primary strands have been made by bundling together in substantially parallel position several secondary strands. Such ropes can in general be manufactured rapidly.

20 The drawback of such a rope, however, is that it cannot be used for the manufacture of endless rope. When in the manufacture of such a rope a reel with primary strand runs empty, there is no possibility to connect the primary strand to that of a following reel without considerable loss of strength.

The aim of the invention is to provide an endless rope.

25 It has been found to be possible to achieve this aim when in the rope according to the invention the primary strands are laid up from 3, 4 or 6 secondary strands yarns and the rope contains a splice in at least every primary strand.

30 An advantage of the rope according to the invention in comparison with the rope of US-A-5901632 is that the rope according to the invention can be manufactured faster, has a higher strength and is easier to splice.

Due to this it is achieved that an endless rope can be manufactured as will be further described below.

35 A rope which has been built up in several steps contains several construction elements. Examples of this are a yarn composed of twined or non-twined filaments, or a strand or a combination thereof, which can be composed of laid-up or

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CLAIMS

- 5 1. Endless rope (10) containing primary strands (12), the primary strands (12) containing laid-up secondary strands (14), the laid-up secondary strands (14) containing rope yarns (16), wherein the primary strands (12) have been laid up from 3, 4 or 6 secondary strands (14) and the rope contains a splice in at least every primary strand.
- 10 2. Endless rope according to claim 1, wherein the rope has been laid up from 3, 4 or (1+6) primary strands.
- 15 3. Endless rope according to claim 1, wherein the rope has been braided from 8 or 12 primary strands.
- 20 4. Endless rope according to anyone of claims 1-3, wherein the rope contains HMPE yarns.
5. Endless rope according to any one of claims 1-4, wherein the diameter of the rope is more than 20 mm.
6. Endless rope according to claim 5, wherein the length of the rope is more than 1000 metres.

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